

# **Community Multiscale Air Quality Modeling System**

## **A 2022 Research Impact Metrics Analysis**

CMAQ TEAM

U.S. ENVIRONMENTAL PROTECTION AGENCY



Report Prepared by the EPA-RTP Library

UNC Contractors

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## ABOUT THIS REPORT

This report presents a summary-level bibliometric analysis of the 2022 publications which referred to the Community Multiscale Air Quality Modelling System, or CMAQ. The dataset was generated by a search in the Web of Science Core Collection and All Databases records using the following strategy:

**TOPIC=(CMAQ OR "community multiscale air quality" OR "community multi-scale air quality")**

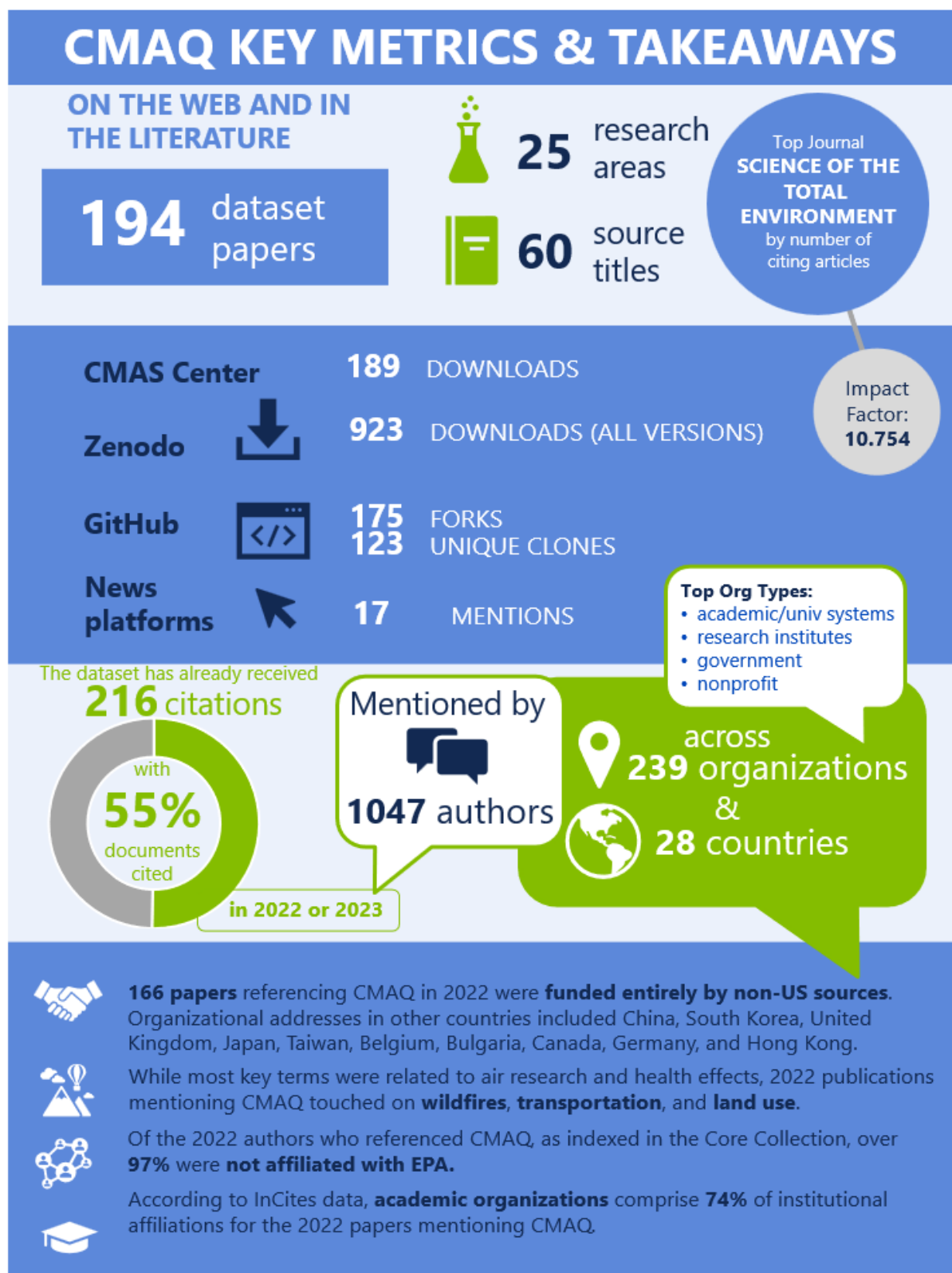
where the "TOPIC" field (TS) searches the Web of Science Core Collection records in the title, abstract, keywords, and Keywords Plus® fields.<sup>1</sup>

The results (n=194) were collected on 10 January 2023. Analysis was completed using Web of Science Analyze and Citation Report features and InCites. More information about the methodology used and a full listing of the publications evaluated in this report are available upon request to [johnson.taylor@epa.gov](mailto:johnson.taylor@epa.gov).

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<sup>1</sup> Web of Science Core Collection Help: Advanced Search Field Tags. Accessed from <http://webofscience.help.clarivate.com/Content/wos-core-collection/woscc-search-field-tags.htm>

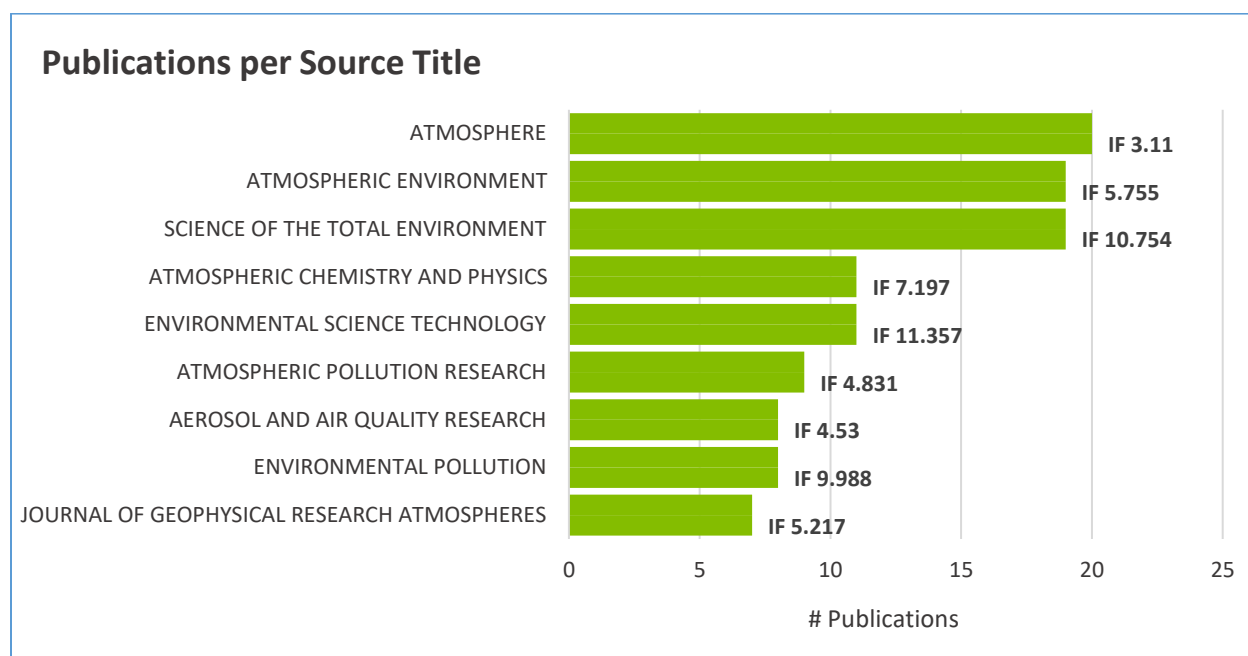
## KEY METRICS & TAKEAWAYS



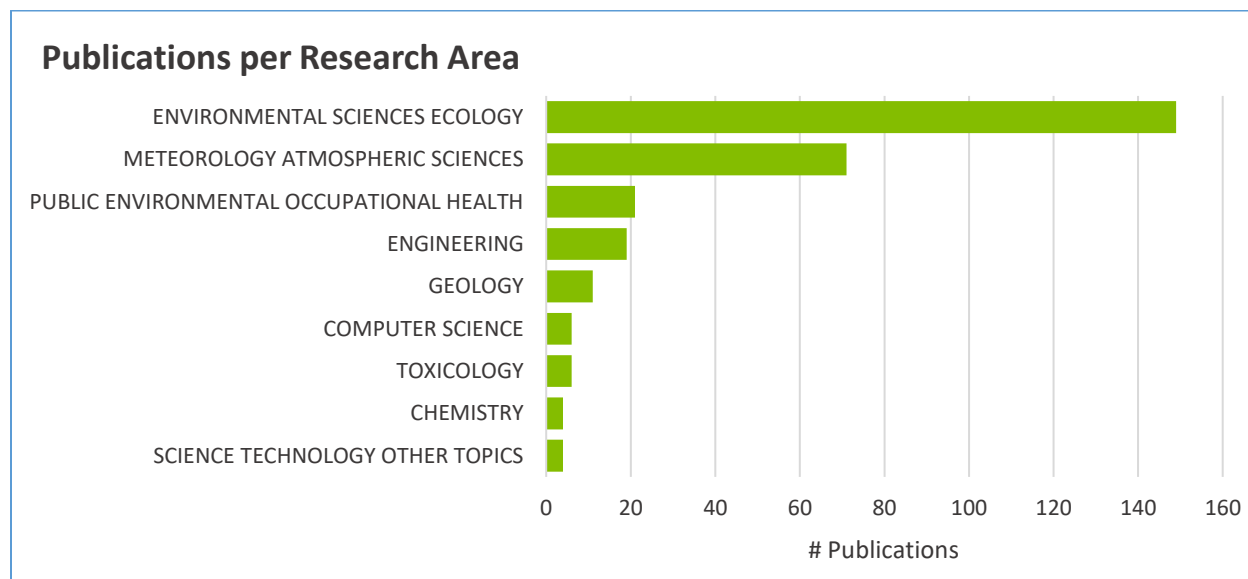
## PUBLICATION ANALYSIS

The following section assesses the 2022 publications comprising the dataset resulting from the CMAQ search detailed on page 2. For clarity, the figures showing the number of publications per research area, journal, institution, and funding agency only list the top 10 results in each category or next tie-breaking threshold.

### Journals and Research Areas

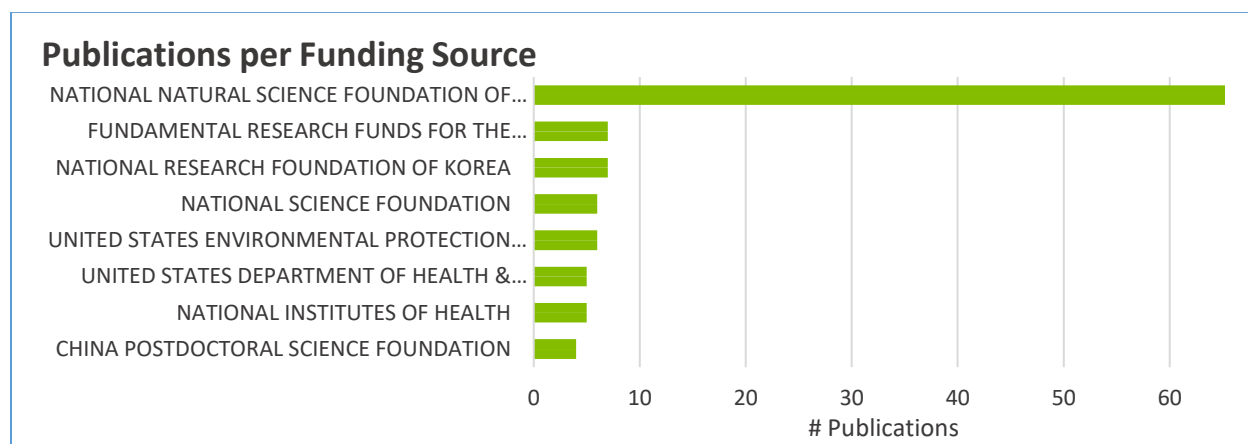


**Figure 1:** Number of CMAQ publications per journal in Web of Science All Databases with the Journal Impact Factor from JCR.

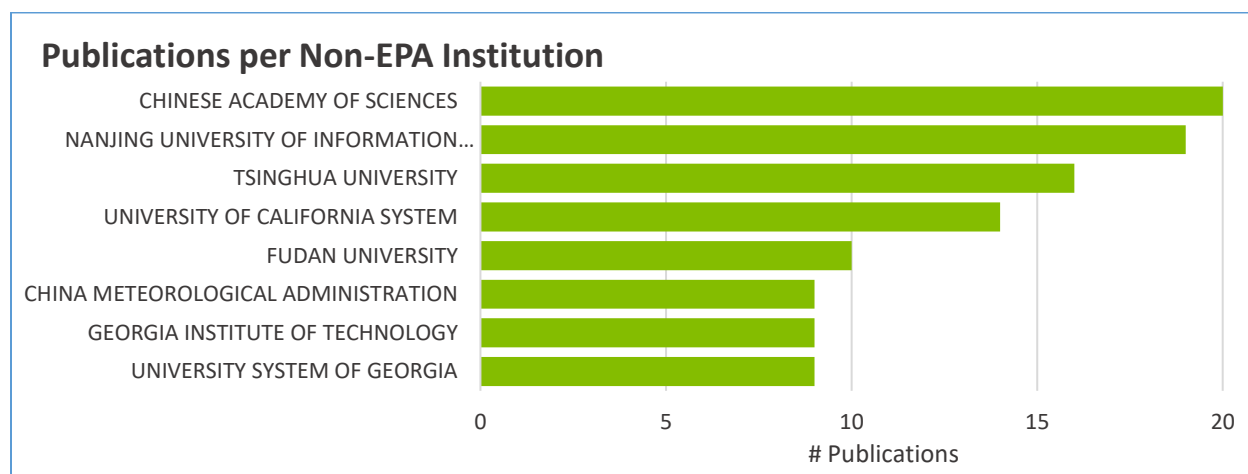


**Figure 2:** Number of CMAQ publications by the research area assigned by Web of Science to the journals in which the articles were published. These categories are not mutually exclusive.

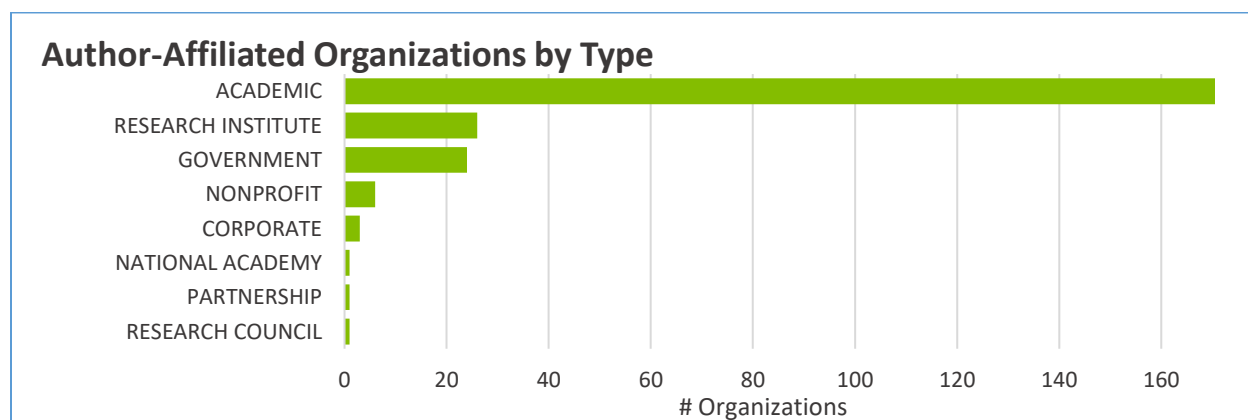
## Funding and Collaborating Organizations



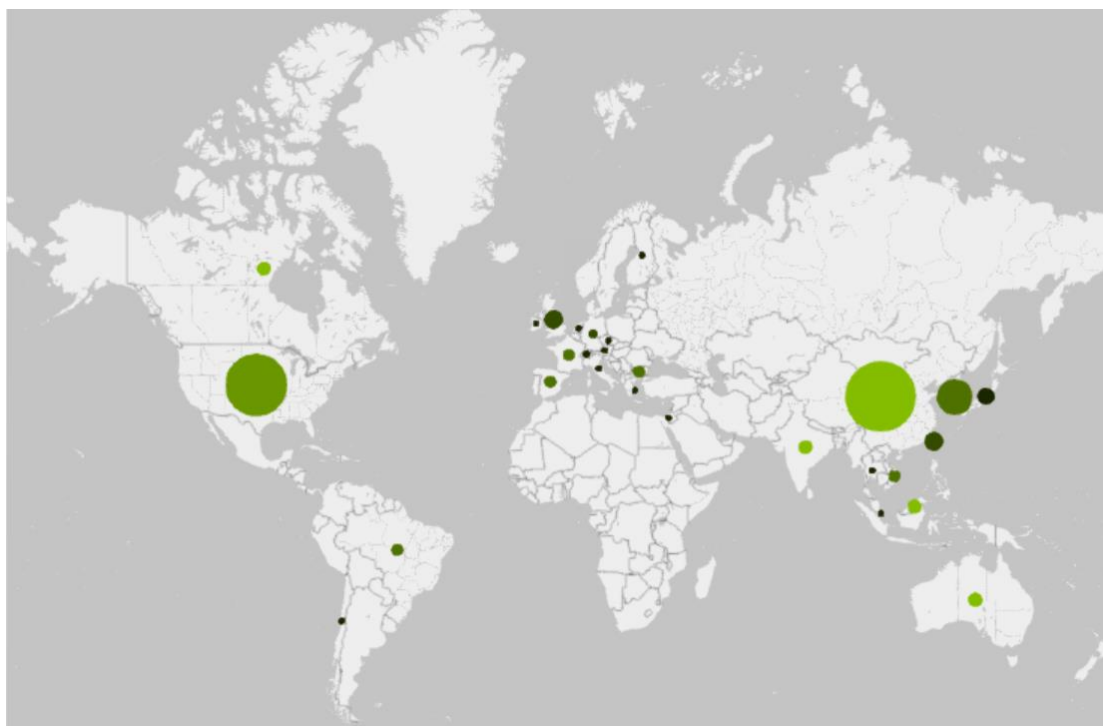
**Figure 3:** Number of publications per InCites-indexed funding source.



**Figure 4:** Number of CMAQ publications per non-EPA author-affiliated organization. Articles are counted for an institution if at least one of the article's authors lists that institution as their affiliation. Compiled from Web of Science Core Collection data.



**Figure 5:** Number of author-affiliated organizations by type of organization. Each institution has been listed by at least one author in the set as an affiliation. Compiled from InCites data.

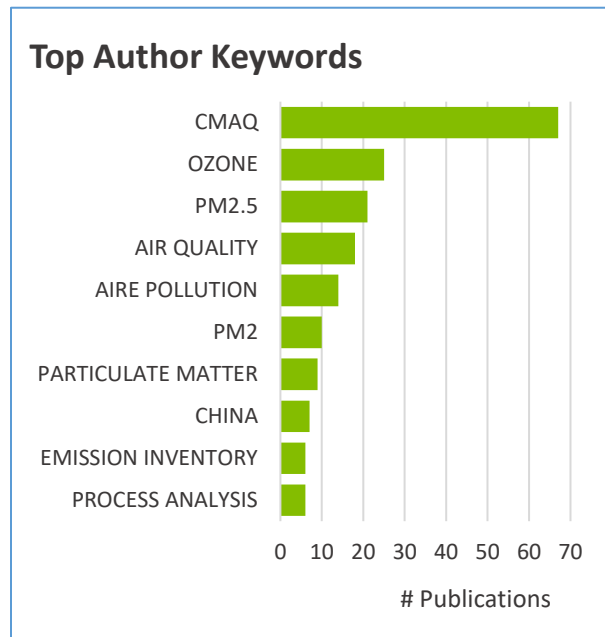


**Figure 6:** Distribution of CMAQ publications per co-authoring country. Publications are counted for an institution if at least one of the article's authors lists that country as their affiliated institution's address. Compiled from Web of Science data.

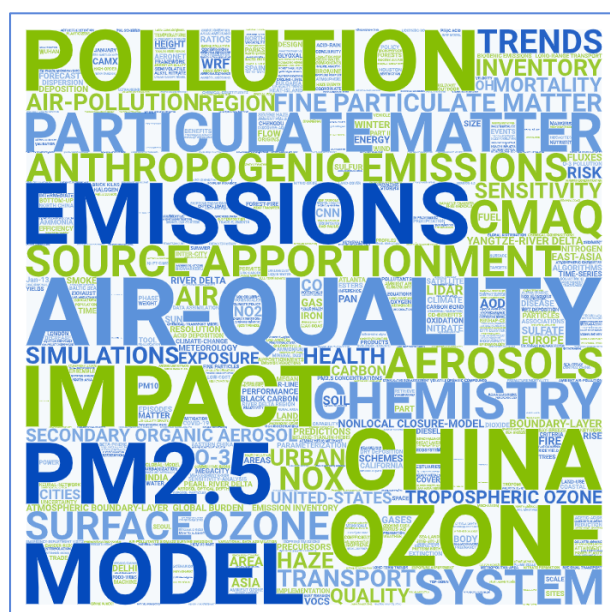
Country	Papers	Country	Papers
CHINA	97	VIETNAM	3
USA	75	GERMANY	2
SOUTH KOREA	25	AUSTRIA	1
UNITED KINGDOM	7	CHILE	1
TAIWAN	7	CZECH REPUBLIC	1
JAPAN	6	FINLAND	1
AUSTRALIA	4	GREECE	1
CANADA	4	IRELAND	1
INDIA	4	ISRAEL	1
MALAYSIA	4	ITALY	1
BRAZIL	3	NETHERLANDS	1
BULGARIA	3	SINGAPORE	1
FRANCE	3	SWITZERLAND	1
SPAIN	3	THAILAND	1

**Table 1:** Number of publications by country according to author affiliations. Compiled from Web of Science All Databases data.

## Author Keywords and Topics



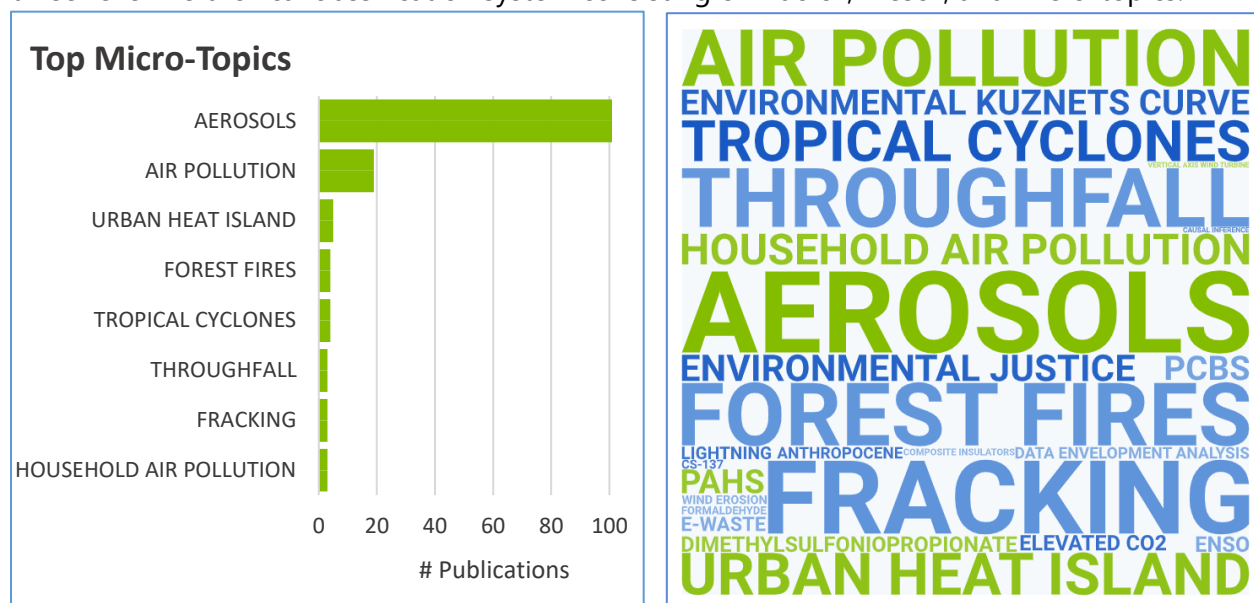
**Figures 7 and 8:** Top 10 author-provided keywords from the Web of Science Core Collection with terms with a frequency greater than 3 displayed in a word cloud powered by WordArt.com.



**Figures 9 and 10:** Top 10 KeyWords Plus terms from the Web of Science Core Collection with terms with a frequency greater than 3 displayed in a word cloud powered by WordArt.com.

## Citation Topics

Citations Topics<sup>2</sup> is a new schema available in InCites that algorithmically analyzes articles to create clusters based on cited and citing relationships between documents. The schema is a three-level hierarchical classification system consisting of macro-, meso-, and micro-topics.



**Figures 11 and 12:** Top 8 Micro Citation Topics from Incites with all micro topics displayed in a cloud powered by WordArt.com.

Macro-Topics	Meso-Topics	Micro-Topics	# Pubs
3 AGRICULTURE, ENVIRONMENT & ECOLOGY	3.45 SOIL SCIENCE	3.40.1598 FOREST FIRES	4
6 SOCIAL SCIENCES	6.115 SUSTAINABILITY SCIENCE	6.115.234 ENVIRONMENTAL KUZNETS CURVE	2
	6.153 CLIMATE CHANGE	6.153.2168 ENVIRONMENTAL JUSTICE	2
8 EARTH SCIENCES	8.124 ENVIRONMENTAL SCIENCES	8.124.10 AEROSOLS	106
		8.124.1775 FRACKING	3
		8.124.2044 DIMETHYLSULFONIOPROPIONATE	2
		8.124.2192 HOUSEHOLD AIR POLLUTION	3
		8.124.552 AIR POLLUTION	19
	8.19 OCEANOGRAPHY, METEOROLOGY, & ATMOSPHERIC SCIENCES	8.19.113 TROPICAL CYCLONES	4
		8.19.743 URBAN HEAT ISLAND	5

**Table 2.** A table mapping macro-topics to their respective meso-topics and micro-topics as indexed in InCites.

<sup>2</sup> For more information about Citation Topics, visit:

<https://incites.help.clarivate.com/Content/Research-Areas/citation-topics.htm>